

of sodium* in gypsum of Windsor, marked a resemblance between it and similar rocks containing glauber and common salt in Spain &c., and, as regards boracic acid, with some in Germany containing boracite and Stassfurthite. Now the nodules of silicated borate in anhydrite and in gypsum of Brookville, both rocks containing a little silica, and in gypsum of Newport, bring these into the same class, so far as silica is concerned, with some gypsums (originally belonging to secondary strata) in the Hartz, which, according to Fropolli, contain nodules of silicate of magnesia, and with those of Montmartre near Paris, which hold soluble silica, or flints and chert†. Further analogy between these and other sulphate-of-calcium deposits is shown in the fact, which I have lately learned, that nearly every specimen of gypsum and anhydrite here yielding borates contains carbonates in notable but as yet unascertained amount, consisting to some extent of magnesia (of which traces appear in the borates as seen in my analyses), as well as in the detection now announced of Arragonite in cavities in gypsum, and of crusts of this mineral or calcite on the surfaces of gypsum and anhydrite, and also sometimes on the natroborocalcite and silicoborate in the former, and close to and underlying the silicoborocalcite of the latter.

These mineral contents and the numerous brine-springs of the gypsiferous districts here point to sea-water as the parent of the gypsum; but, as I observed in a former paper (1861) referred to above, ordinary sea-water would not furnish boracic acid. This acid, however, I afterwards found in a brine-spring issuing in a gypsiferous district here‡, and it has been met with in the waters of Aachen and Wiesbaden, and by Hunt in all the alkaline waters of Canada (Ontario and Quebec) examined for it, and in certain neutral waters of the same country§. These last waters arise from Lower Silurian rocks; and all those named as containing boracic acid may resemble Palaeozoic sea-water rather than our own. An origin for the boracic acid in the borates has also been sought by myself|| in volcanic waters containing sulphuric acid, such as Dr. Dawson considers to have produced the gypsums here by action on the deposits of carbonate of lime; but when we have it combined with silica and we consider the other contents of the rocks in question, sea-water certainly seems rather to be indicated. However we may derive gypsum directly by either of these methods, or by others¶, it is said

* *Loc. cit.* 1857-61.

† Hunt, *Silliman's Journal*, November 1859, pp. 366, 367.

‡ *Trans. Nova Scotia Institute*, 1865.

§ *Geology of Canada*, p. 560.

|| *Loc. cit.* 1857.

¶ See Hunt's elaborate paper "On the Formation of Gypsum, &c." *Silliman's Journal*, September and November 1859.